Alvin S. Lim

Curriculum Vitae

Current Address:

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A. Personal Information

A.1 Educational Background

Ph.D. May 1993, Computer Science, University of Wisconsin, Madison, WI
M.S. May 1984, Computer Science, Indiana University, Bloomington, IN
B.E.(Hons.) June 1978, Electrical Engineering, University of Malaya, Malaysia

A.2 Employment History

9/15 - present:	Professor, Department of Computer Sciences and Software Engineering,
	Auburn University, Alabama, AL
9/02 - 8/15:	Associate Professor, Department of Computer Sciences and Software Engineering,
	Auburn University, Alabama, AL
9/97 - 8/02:	Assistant Professor, Department of Computer Sciences and Engineering,
	Auburn University, Alabama, AL
9/92 - 8/97:	Assistant Professor, Department of Computer and Information Sciences,
	Clark Atlanta University, Atlanta, GA

A.3 Current Research Interests

Vehicular and wireless ad-hoc networks, self-organizing sensor-actuator networks, mobile and pervasive computing, wireless networks, reliable and dynamically reconfigurable distributed systems, complex distributed systems, mobile and distributed databases, distributed operating systems, and performance measurement and analysis.

A.4 Honors and Awards

- National Science Foundation (NSF), PI: Alvin Lim, co-PI: Douglas Warrington, Abhishek Kulkarni, Positioning System in GPS-denied Environments using Euclidean TOA Ranging and Linear Matrix Inequalities, July 1, 2014 - December 31, 2014.
- National Science Foundation (NSF), PI: Wei-Shin Ku, Co-PI: Alvin Lim, Shiwen Mao, Xiao, Qin, An Infrastructure for Scalable Data Dissemination and Query Evaluation in Mobile Environments, Aug 16, 2009 Aug 15, 2012.
- U.S. Dept. of Education, PI (Alvin Lim, 80% contribution) and co-PI: Kai Chang, et.al., GAANN (Graduate Assistantship in Areas of National Needs) program, on *Doctoral Fellowship in Wireless and Mobile Technology*, August 2007 – August 2010.
- National Science Foundation (NSF), PI: Alvin Lim on Distributed Composition Services for Self-Organizing Sensor Network Applications, June 2003 – June 2005.
- Senior Faculty Research Award, Auburn Alumni Engineering Council, Auburn University, 2002.
- DARPA, PI: Alvin Lim on Self-Organizing Sensor Networks with Reconfigurable Smart Components, June 2000 June 2003.
- National Science Foundation (NSF) CAREER Award, PI: Alvin Lim, Operating System Support and Programming Environment for Evolutionary Parallel and Distributed Applications, May 95 April 2000.

B. Research and Creative Work

B.1 Publications

B.1.1 Book Chapters

- Distributed Services for Wireless Sensor Networks, by Alvin Lim, Chapter in Handbook on Distributed Sensor Networks: Volume 2 Networking and Applications (Second Edition), Richard R. Brooks and S. Sitharama Iyengar (Editors), Chapman & Hall, CRC Computer and Information Science Series, CRC Press, September 24, 2012, pp. 457-480 (Contribution: 100%, 24 pages).
- 2. Wireless Sensor Network Testbed for Target Tracking, by Alvin Lim, Qing Yang, Chapter in Handbook on Distributed Sensor Networks: Volume 2 Networking and Applications (Second Edition), Richard R. Brooks and S. Sitharama Iyengar (Editors), Chapman & Hall, CRC Computer and Information Science Series, CRC Press, September 24, 2012, pp. 805-828 (Contribution: 50%, 24 pages)
- 3. Smart Sensor Networks, by Alvin Lim, Chapter in Perception-Reason-Action Cycle: Models, Algorithms and Systems, edited by Vassilis Cutsuridis, John G. Taylor, Daniel Polani, Amir Hussain, and Naftali Tishby, Springer Series in Cognitive and Neural Systems, Dec 31, 2010, pp. 675-709 (Contribution: 100%, 35 pages)
- Reliability Support in Sensor Networks, by Alvin Lim, Chapter in Handbook on Sensor Networks: Compact Wireless and Wired Sensing Systems, edited by Mohammad Ilyas and Imad Mahgoub, CRC Press, 2005, pp.763-778 (Contribution: 100%, 16 pages).
- Distributed Services, by Alvin Lim, Chapter in Distributed Distributed Sensor Networks, Richard R. Brooks and S. Iyengar (Editors), Chapman & Hall, CRC Computer and Information Science Series, CRC Press, 2005, pp. 819-834 (Contribution: 100%, 16 pages).
- 6. Voice over ATM, by Alvin Lim, Chapter 4.2 of the ATM Handbook, edited by F. Golshani and F. Groom, International Engineering Consortium, 2000, pp. 229-241 (Contribution: 100%, 13 pages).

B.1.2 Refereed Journal Publications

- 1. An Empirical Study of DSRC V2V Performance in Truck Platooning Scenarios, by Song Gao, Alvin S. Lim, and David Bevly, *Digital Communications and Networks*, Elsevier, Vol. 2, No. 4, Nov 2016, pp. 233-244.
- Privacy-Enabled Probabilistic Verification in Broadcast Authentication for Vehicular Networks, by Kanika Grover, Alvin Lim, S. Lee and Q. Yang, Ad Hoc & Sensor Wireless Networks, Vol. 32, No. 3-4, pp. 239274. 2016.
- 3. A Distributed Middleware for Self-configurable Wireless Sensor Networks, by Lei Zhang, Alvin Lim, Yi Pan, and Bin Wu, accepted to International Journal of Sensor Networks (IJSNET), Inderscience Publishers (Impact Factor: 1.386, Contribution: 40%, 14 pages).
- 4. Interconnection between IP Networks and Wireless Sensor Networks, by Brandon Maharrey, Alvin Lim, and Song Gao, accepted to International Journal of Distributed Sensor Networks.
- 5. An Empirical Study on Ad hoc Performance of DSRC and WiFi Vehicular Communications, by Seungbae Lee, Alvin Lim, accepted to Int. J. Distributed Sensor Networks, Inderscience Publishers.
- Efficient Authentication Approach for Highly Dynamic Vehicular Ad Hoc Networks, by Kanika Grover, Seungbae Lee, Alvin Lim, International Journal of Ad Hoc and Ubiquitous Computing, Vol. 19, Issue 3-4, 2015, Inderscience Publishers (Impact Factor: .848, H Index: 9, Contribution: 40%, 16 pages).

- 7. Jamming and Anti-jamming Techniques in Wireless Networks: A Survey, by Kanika Grover, Alvin Lim, and Qing Yang, accepted to Int. Journal of Ad Hoc and Ubiquitous Computing, Inderscience Publishers (Impact Factor: 0.848, H Index: 9, Contribution: 40%, 20 pages).
- 8. A Survey of Broadcast Authentication Schemes for Wireless Networks, by Kanika Grover and Alvin Lim, Ad Hoc Networks (Journal), August 23, 2014, Elsevier Publisher (Impact Factor: 1.943, H Index: 49, Contribution: 50%, 29 pages).
- An Empirical Study of Reliable Networking for Vehicular Networks Using IEEE 802.11n, by Seungbae Lee and Alvin Lim, International Journal of Vehicle Autonomous Systems, Inderscience Publishers, Vol. 12, No. 2, pp. 141-152, 2014 (H Index: 13, Contribution: 40%, 12 pages).
- Location-Preserved Contention Based Routing in VANETs, by Qing Yang, Alvin Lim, Dongjin Kim, Xiao Ruan, Xiao Qin, Security and Communication Networks (Journal), April 11, 2014, DOI: 10.1002/sec.1008, John Wiley and Son, Ltd. (Impact Factor: .433, Contribution: 30%, 21 pages).
- 11. An Empirical Study on Ad hoc Performance of DSRC and WiFi Vehicular Communications, by by Seungbae Lee and Alvin Lim, International Journal of Distributed Sensor Networks, Vol. 2013, Hindawi Publishing Corporation (Impact Factor: .923, H Index: 12, Contribution: 50%, 12 pages).
- 12. Enabling Actionable Analytics for Mobile Devices: Performance of Distributed Analytics on Hadoop Mobile Cluster, by Seungbae Lee, K. Grover and Alvin Lim, Journal of Cloud Computing: Advances, Systems and Applications, Vol. 2, Oct. 1, 2013, 2:15, Springer Publishers (Contribution: 40%, 24 pages).
- 13. Interconnection between IP Networks and Wireless Sensor Networks, by Alvin S. Lim, Brandon Keith Maharrey and Song Gao, International Journal of Distributed Sensor Networks, Vol. 2012, Hindawi Publishing Corporation (Impact Factor: .923, H Index: 12, Contribution: 40%, 15 pages).
- 14. Motion-Based Region of Interest (ROI) Transmission with Variable Frame Rate over Wireless Multimedia Sensor Networks, by Jian Fang, Alvin Lim, and Qing Yang, IEEE Multimedia Technical Committee E-Letter, Vol. 6, No. 9, IEEE Communication Society, pages 43-47, September 2011 (Contribution: 30%, 6 pages).
- 15. ACAR: Adaptive Connectivity Aware Routing for Vehicular Ad Hoc Networks in City Scenarios, by Qing Yang, Alvin Lim, Shuang Li, Jian Fang and Prathima Agrawal, ACM Mobile Networks and Applications Journal (MONET), Volume 15, Number 1, pages 36-60, February 2010 (48 Citations, Impact Factor: 1.496, Contribution: 40%, 25 pages) (Cited by: Imperial College, Indiana University, University of Kentucky, Old Dominion Univ., LaTrobe University, Melbourne, Australia, Seoul National University of Science and Technology, University of British Columbia, etc.).
- Improving QoS-based Routing by Limiting Interference in Lossy Wireless Sensor Networks, by Shuang Li, Alvin Lim, Cong Liu, International Journal of Wireless & Mobile Networks (IJWMN), Volume 2, Number 4, pages 44-58, November 2010 (Acceptance Rate: 15%, Contribution: 40%, 15 pages).
- A High TCP Performance Rate Adaptation Algorithm for IEEE 802.11 Networks, Kehao Zhang, Alvin Lim, Shaoen Wu and Qing Yang, International Journal of Computer Networks & Communications (IJCNC), Volume 2, Number 6, pages 32-45, November 2010 (Acceptance Rate: 10%, Contribution: 30%, 14 pages).
- Energy-Efficient Traffic-Aware Detour Trees for Geographical Routing, by Lei Zhang, Deying Li and Alvin Lim, International Journal of Computer Networks & Communications (IJCNC), Volume 2, Number 1, pages 154-168, January 2010 (Acceptance Rate: 10%, Contribution: 40%, 15 pages).

- Efficient Multi-Path Protocol for Wireless Sensor Networks, by Shuang Li, Raghu Neelisetti, Cong Liu and Alvin Lim, International Journal of Wireless & Mobile Networks (IJWMN), Volume 2, Number 1, pages 110-130, February 2010 (Acceptance Rate: 15%, Contribution: 40%, 21 pages).
- An Interference-Aware Routing Algorithm for Multimedia Streaming over wireless sensor networks, by Shuang Li, Raghu Kisore Neelisetti, Cong Liu, Santosh Kulkarni, and Alvin Lim, International Journal of Multimedia & Its Applications (IJMA), Volume 2, Number 1, pages 10-30, February 2010 (Acceptance Rate: 20%, Contribution: 40%, 21 pages).
- A Distributed System for Mad-cow Disease Monitoring and Tracking, by Lei Zhang, Alvin Lim, Hui Song, and Xinliang Zheng, International Journal of UbiComp (IJU), Volume 1, Number 2, pages 1-18, April 2010 (Contribution: 40%, 18 pages).
- 22. GPSFR: GPS-Free Routing Protocol for Vehicular Networks with Directional Antennas, by Qing Yang, Alvin Lim, and Prathima Agrawal, International Journal of Wireless & Mobile Networks, Volume 1, Number 2, pages 67-81, November 2009 (Acceptance Rate: 15%, Contribution: 40%, 15 pages).
- 23. An Enhanced CPA Algorithm for Real-Time Target Tracking in Wireless Sensor Networks, by Qing Yang, Alvin Lim, Kenan Casey and Raghu-kisore Neelisetti, Int. Journal on Distributed Sensor Networks (IJDSN), Volume 5, Number 5, pages 619-643, Taylor and Francis, 2009 (6 citations, Impact Factor: .923, H Index: 12, Contribution: 50%, 25 pages).
- 24. An Empirical Study on Real-Time Target Tracking with Enhanced CPA Algorithm in Wireless Sensor Networks, by Qing Yang, Alvin Lim, Kenan Casey, Raghu kisore Neelisetti, Ad Hoc & Sensor Wireless Networks: An International Journal (AHSWN), Volume 7, Number 3-4, pages 225-249, 2009 (Impact Factor: .454, Contribution: 50%, 25 pages).
- 25. A Sensor Network Architecture for Tsunami Detection and Response, by Kenan Casey, Alvin Lim, Gerry Dozier, International Journal on Distributed Sensor Networks, Volume 4, Issue 1, pages 28 - 43, Taylor and Francis, January 2008 (19 citations, Impact Factor: .923, H Index: 12, Contribution: 40%, 25 pages) (Cited by: University of Houston, University of London, University of Singapore, Nanjing University, University of Bologna, etc.).
- 26. Performance Evaluation of Adaptive Media Access Control Protocols for Pervasive Wireless Networks, by Alvin Lim and Kui Mok, Journal of Interconnection Networks, Vol.3 No. 03n04, September and December 2002, pp. 253-272, World Scientific Publisher (H Index: 6, Contribution: 50%, 20 pages).
- 27. Distributed Services for Information Dissemination in Self-Organizing Sensor Networks, by Alvin Lim, Special Issue on Distributed Sensor Networks for Real-Time Systems with Adaptive Reconfiguration, Journal of Franklin Institute, Elsevier Sciences Publisher, Volume 338, Issue 6, pp. 707-727, September 2001. (93 citations, Impact Factor: 2.26, Contribution: 100%, 21 pages)(Cited by: University of Virgina, Duke University, University of Tennessee, Loiusian State University, Pennsylvania State Univ., University of Cantebury, Lancaster Univ., University Paderborn, Univ. of South Florida, etc.).
- Parallel Program Execution Analysis for Performance Tuning, by Alvin Lim, Nazir Warsi, Yufeng Chen, Neural, Parallel and Scientific Computations (Journal), Vol. 6, No. 2, pp. 189-198, Dynamic Publishers, June 1998 (H Index: 7, Contribution: 90%, 10 pages).
- Wireless Media Access Control for Highly Mobile Information Servers: Simulation and Performance Evaluation, by Alvin Lim and Kui Mok ACM Mobile Computing and Communication Review, Vol. 1, No. 2, pp. 17-24, 1997 (Contribution: 50%, 8 pages).
- IPS-2: The Second Generation of a Parallel Program Measurement System, by B. Miller, M. Clark, S. Kierstead, J. Hollingsworth, Alvin Lim, T. Torzewski, *IEEE Transaction on Parallel and Distributed Systems*, Vol.1, No. 2, pp. 206-217, April 1990 (239 citations, Impact Factor: 2.173, H

Index: 78, Contribution: 25%, 12 pages)(Cited by: Stanford University, Carnegie Mellon University, Rice University, Microsoft Corporation, Boston University, University of Wisconsin, Georgia Tech., Bellcore, University of Illinois, Nasa Ames Research Center, IBM T.J. Watson Res. Center, etc.)

B.1.3 Refereed Conference Publications

- 1. Performance Comparison between Broadcast Authentication Methods for Vehicular Networks, by Kanika Grover and Alvin S. Lim, 4th International Conference on Information and Network Security, Dec. 28-31, 2016, Kuala Lumpur, Malaysia.
- 2. Self-organizing TCP with Multiple Wireless LAN, by Song Gao and Alvin S. Lim, Workshop on Self-Organizing Wireless Access Networks for Smart City in IEEE Int. Conf. on Sensing, Communication, and Networking (SECON), June 30 - July 3, 2014, Singapore (Contribution: 50%, 6 pages).
- 3. MobSched: Customizable Scheduler for Mobile Cloud Computing, by Suraj Sindia^{*}, Song Gao, Bobby Black, Alvin Lim, Vishwani Agrawal, Prathima Agrawal, Southeastern Symposium on System Theory, March 11, 2013, Waco, Texas (5 citations, Contribution: 30%, 6 pages).
- 4. Driver Layer Approach to Time-of-Arrival Ranging in IEEE 802.11g Networks, by Ting Yang, Qing Yang, and Alvin Lim, *IEEE Consumer Communications and Networking Conference (CCNC)*, January 14-17, 2012, Las Vegas, Nevada (Acceptnace Rate: 34%, Contribution: 40%, 5 pages).
- Rate Adaptation with Collision Differentiation for 802.11 Wireless Network, by Dongjin Kim, Qing Yang, and Alvin Lim, *IEEE Consumer Communications and Networking Conference (CCNC)*, January 14-17, 2012, Las Vegas, Nevada (Acceptnace Rate: 34%, Contribution: 30%, 5 pages).
- Reliability and Performance of IEEE 802.11n for Vehicle Networks with Multiple Nodes, by Seungbae Lee and Alvin Lim, Workshop on Cost, Reliability, Energy Requirements and Constraints in Next Generation Networks, IEEE Conference on Computing, Networking and Communication, January 30 February 2, 2012, Maui, Hawaii (Contribution: 40%, 5 pages).
- TOA Ranging Using Real Time Application Interface (RTAI) in IEEE 802.11 networks, by Jian Fang, Alvin Lim, Qing Yang, First International Conference, GreeNets 2011, October 5-7, 2011, Colmar, France, pp 88-98 (Contribution: 40%, 11 pages).
- 8. Location Privacy Protection in Contention Based Forwarding for VANETs, by Qing Yang, Alvin Lim, Xiaojun Ruan and Xiao Qin, *IEEE Global Communication Conference (GLOBECOM)*, December 2010, Miami, Florida (5 citations, Acceptance Rate: 35%, Contribution: 40%, 11 pages).
- 9. A Practical Rate Adaptation Algorithm for IEEE 802.11 Networks, by Kehao Zhang, Alvin Lim, and Shaoen Wu, Int. Conference on Cyber-Enabled Distributed Computing and Knowledge Discovery (CyberC) Huangshan, Anhui, China, October 10-12, 2010 (Acceptance Rate: 27%, Contribution: 30%, 8 pages).
- Traffic-Aware Routing Tree for Underwater 3-D Geographic Routing, by Lei Zhang, Tae-Hyum Kim, Chunlei Liu, Min-Te Sun, and Alvin Lim, Int. Conference on Intelligent Sensors, Sensor Networks and Information Processing, December 15-18, 2008, Sydney, Australia, pp. 487-492 (Acceptance Rate: 35%, Contribution: 30%, 6 pages).
- ACAR: Adaptive Connectivity Aware Routing Protocol for Vehicular Ad Hoc Networks, by Qing Yang, Alvin Lim, Shuang Li and Jian Fang, *IEEE 17th International Conference on Computer* Communications and Networks, August 3-7, 2008, St. Thomas, U.S. Virgin Islands, pp. 1-6 (54 citations, Acceptance Rate: 25%, Contribution: 40%, 6 pages).
- Delay-Constrained High Throughput Protocol for Multi-Path Transmission over Wireless Multimedia Sensor Networks, by Shuang Li, Raghu Neelisetti, Cong Liu and Alvin Lim, IEEE Int. Symposium on a World of Wireless Mobile and Multimedia Networks, June 23-27, 2008, Newport Beach, California, pp. 1-8 (20 citations, Acceptance Rate: 32%, Contribution: 40%, 8 pages).

- An Empirical Study of Real-Time Target Tracking with CPA Algorithm in Wireless Sensor Networks, by Qing Yang, Alvin Lim, Kenan Casey and Raghu-kisore Neelisetti, *IEEE Conference on Sensor, Mesh, and Ad Hoc Networks (SECON)*, June 16-20, 2008, San Francisco, California, pp.305-313 (15 citations, Acceptance Rate: 18%, Contribution: 40%, 9 pages).
- Connectivity Aware Routing in Vehicular Networks, by Qing Yang and Alvin Lim, IEEE Wireless Communication & Networking Conference, Las Vegas, March 31 – April 3, 2008, pp. 2218-2223 (45 citations, Acceptance Rate: 43%, Contribution: 40%, 6 pages).
- RTDD: A Real-Time Communication Protocol for Directed Diffusion, by Kenan Casey, Raghu Neelisetti, and Alvin Lim, *IEEE Wireless Communication & Networking Conference*, Las Vegas, March 31 – April 3, 2008, pp. 2852-2857 (9 citations, Acceptance Rate: 43%, Contribution: 30%, 6 pages).
- TART: Traffic-Aware Routing Tree for Geographic Routing, by Lei Zhang, Tae-Hyun Kim, Chunlei Liu, Min-Te Sun and Alvin Lim, *IEEE Wireless Communication & Networking Conference*, Las Vegas, March 31 – April 3, 2008, pp. 2609-2614 (Acceptance Rate: 43%, Contribution: 30%, 6 pages).
- Efficient Routing for Vehicular Networks based on Relative Position and Velocity, by Qing Yang, Raghu Neelisetti, Alvin Lim, Prathima Agrawal, Innovations and Real-time Applications of Distributed Sensor Networks Symposium 2007 (IRA-DSN 2007), Nov. 26-27, 2007, Shreveport, Louisiana (Acceptance Rate: 35%, Contribution: 40%, 8 pages).
- Robust Clustering Algorithm for Target Tracking in Wireless Acoustic Sensor Networks, by Raghu Neelisetti, Alvin Lim, Prathima Agrawal, Qing Yang, Cyberspace Security Workshop in conjuction with Innovations and Real-time Applications of Distributed Sensor Networks Symposium 2007, November 26-27, 2007, Shreveport, Louisiana (Acceptance Rate: 35%, Contribution: 40%, 8 pages).
- EDGE: A Routing Algorithm for Maximizing Throughput and Minimizing Delay in Wireless Sensor Network, by Shuang Li, Alvin Lim, Santosh Kulkarni, Cong Liu, Milcom 2007: Military Communications Conference, October 29-31, 2007, Orlando, Florida, pp. 1-7 (21 citations, Acceptance Rate: 25%, Contribution: 40%, 7 pages).
- A Sensor Network Architecture for Tsunami Detection and Response, by Kenan Casey, Alvin Lim, Gerry Dozier, Innovations and Real-time Applications of Distributed Sensor Networks (DSN) Symp., Oct. 16-17, 2006, Washington D.C. (Acceptance Rate: 35%, Contribution: 30%, 8 pages).
- GPSFR: GPS-Free Geographic Routing Protocol for Intelligent Vehicles, by Qing Yang, Alvin Lim, and Prathima Agrawal, Int. Workshop on Vehicle Communication and Applications in Int. Conf. on Communications and Networking in China, Oct 25-27, 2006, Beijing, China, pp. 1-8 (Contribution: 40%, 8 pages).
- 22. Improving Lifetime in Maximum Residual Energy Routing with Increased Transmission Distance and Retransmission, by Lei Zhang and Alvin Lim, Int. Conf on Communications, Circuits and Systems, IEEE, June 25-28, 2006, Gui Lin, China, pp. 1438-1442 (Contribution: 40%, 5 pages).
- 23. Evolving General Regression Neural Networks for Tsunami Detection and Response, by Kenan Case, Alvin Lim and Gerry Dozier, Congress on Evolutionary Computation, July 16-21, 2006, Vancouver, BC, Canada, pp. 2451-2458 (10 citations, Acceptance Rate: 52%, Contribution: 30%, 8 pages).
- Interactive and Extensible Framework for Execution and Monitoring of Wireless Sensor Networks, by Mark Ivester and Alvin Lim, First Int. Conference on Communication Systems Software and Middleware, IEEE/ACM, New Delhi, India, January 8-12, 2006, pp. 1-10 (10 citations, Acceptance Rate: 28.5%, Contribution: 40%, 10 pages).

- Support for Reliability in Self-Organizing Sensor Networks, it by Alvin Lim, Proceedings of the Int. Conference on Information Fusion, Annapolis, Maryland, July, 2002, pp. 973-980 (11 citations, Acceptance Rate: 61%, Contribution: 100%, 8 pages).
- 26. Distributed Lookup Services for Wireless Ad-hoc Sensor Networks, by Alvin Lim, Proceedings of the 2nd Asian International Mobile Computing Conference, May 2002 (Contribution: 100%, 6 pages).
- 27. Architecture for Dynamic Information Dissemination and Fusion in Distributed Sensor Networks, it by Alvin Lim, *Proceedings of the International Conference on Information Fusion 2001*, Montreal, Canada, August 7-10, 2001, TuC2, pp. 17-24 (5 citations, Acceptance Rate: 61%, Contribution: 100%, 8 pages).
- Dynamic Information Dissemination for Control of Rapidly Changing Enterprise Systems, by Alvin Lim, Proceedings of DARPA-JFACC Symposium on Advances in Enterprise Control, Bloomington, Minnesota, July 10-11, 2000, pp. 109-116 (Acceptance Rate: 61%, Contribution: 100%, 8 pages).
- 29. Scalable and Reliable Techniques for Coordination of Complex Enterprise Systems, by Alvin Lim, Invited Paper, Proceedings of the International Symposium on Infrastructure for E-Business on the Internet, SSGRR, L'Aquila, Italy, July 31 August 6, 2000 (Contribution: 100%, 6 pages).
- Composable Scalable Enterprises with Agile Autonomous Components, by Alvin Lim, Next Generation Enterprises: Virtual Organizations and Mobile/Pervasive Technologies, Proceedings of Academia/Industry Working Conference on Research Challenges, Buffalo, New York, April 27-29, 2000, pp. 349-354 (Contribution: 100%, 6 pages).
- 31. Architecture for Autonomous Decentralized Control of Large Adaptive Enterprises, by Alvin Lim, Proceedings of DARPA-JFACC Symposium on Advances in Enterprise Control, San Diego, California, November 1999 (Contribution: 100%, 4 pages).
- 32. Improving Performance of Adaptive Media Access Control Protocols for High-density Wireless Networks, by Alvin Lim and Kui Mok, Proceedings of the IEEE International Symposium on Parallel Architectures, Algorithms and Networks, June 1999, pp. 316-321 (15 citations, Acceptance Rate: 45%, Contribution: 70%, 6 pages).
- 33. An efficient multilevel master-slave model for distributed parallel computation, by Alvin Lim, Hsin-Chu Chen and Nazir A. Warsi, *Proceedings of the BETECH Conference*, June 1999 (Contribution: 70%, 10 pages).
- 34. A Study on the Design of Large-Scale Mobile Recording and Tracking Systems, by Alvin Lim and Kui Mok, Proceedings of the 31th Hawaii International Conference on System Sciences, IEEE, Hawaii, Jan 1998, Vol. 7, pp. 701-710 (5 citations, Acceptance Rate: 50%, Contribution: 70%, 10 pages).
- 35. Advanced Techniques for Maintaining Reliability of Complex Computer Systems, by Alvin Lim, Proceedings of the 30th Hawaii International Conference on System Sciences, IEEE, Hawaii, Jan 1997, Vol. 5, pp 4-13 (Acceptance Rate: 50%, Contribution: 100%, 10 pages).
- Multilevel Master-Slave Parallel Programming Models, by Hsin-Chu Chen, Alvin Lim and Nazir A. Warsi Proceedings of the Asian Computing Science Conference, Singapore, December 2-5, 1996, pp. 337-338 (Contribution: 40%, 2 pages).
- 37. Performance Evaluation of Wireless Media Access Control for Mobile Computing Applications, by Kui W. Mok and Alvin Lim, Computer Networking Workshop, Asian Computing Science Conference, Singapore, December 1996 (Contribution: 60%, 13 pages).
- Abstraction and Composition Techniques for Reconfiguration of Large-Scale Complex Applications, by Alvin Lim, Proceedings of the IEEE International Conference on Configurable Distributed Systems, Annapolis, Maryland, May 6-8, 1996, pp. 186-193 (11 citations, Contribution: 70%, 8 pages).

- 39. Automatic Analytical Tools for Reliability and Dynamic Adaptation of Complex Distributed Systems, by Alvin Lim, Proceedings of the IEEE International Conference on Engineering of Complex Computer Systems, Florida, November 6-10, 1995, pp. 1-8 (Acceptance Rate: 43%, Contribution: 100%, 8 pages).
- 40. Inventory Control with Mobile Technology: Some Challenges in a Very Large Environment, by Alvin Lim, Calton Pu, N. Warsi, Ken Michon, Steve Gunderson, Lynn Torres, Joint Conference on Information Sciences, Workshop on Mobile Computing Systems, North Carolina, September, 1995 (Contribution: 80%, 4 pages).
- An Approach to Parallel Program Performance Debugging based on Structural Behavior Analysis, by Alvin Lim, Yufeng Chen, Nazir Warsi, Proceedings of the International Conf. on Neural, Parallel and Scientific Computations, Atlanta, GA, May 28-31, 1995, pp. 277-282 (Contribution: 90%, 6 pages).
- 42. A Knowledge-based Design for Pattern Recognition Comparative Analysis by Yufeng Chen, Alvin Lim, Nazir Warsi International Conf. on Neural, Parallel and Scientific Computations, Atlanta, GA, May 28-31, 1995, pp. 94-97 (Contribution: 50%, 4 pages).
- 43. A Uniform Software Architecture for Cooperation, Reliability and Reconfiguration of Autonomous Decentralized Systems, by Alvin Lim, Proceedings of the Second International Symposium on Autonomous Decentralized Systems, IEEE, Phoenix, Arizona, April 25-27, 1995, pp. 33-39 (Acceptance Rate: 30%, Contribution: 100%, 7 pages).
- 44. A State Machine Approach to Dynamic Reconfiguration of Distributed Applications, by Alvin Lim, Proceedings of the Second International Workshop on Configurable Distributed Systems, Pittsburgh, Pennsylvania, March 1994, pp. 208 (Contribution: 100%, 1 pages).
- 45. Specification and Automatic Analysis of Complex Software: A State Machine Approach, by Alvin Lim, Proceedings of the ACM Southeast Conference, Tuscaloosa, Alabama, March 1994, pp. 52-59 (Acceptance Rate: 50%, Contribution: 100%, 8 pages).
- 46. Reliable Distributed Environment for Developing and Controlling Flexible Manufacturing Systems, by Alvin Lim, Proceedings of the International Conference on Robotics, Vision and Parallel Processing for Industrial Automation, May 1994, pp. 183-190 (Contribution: 100%, 8 pages).
- 47. A State Machine Approach to Reliable Distributed Systems, by Alvin Lim, Stuart A. Friedberg, *Proceedings of the 11th IEEE Symposium on Reliable Distributed Systems*, Houston, October 1992, pp. 204-212 (Acceptance Rate: 29%, Contribution: 100%, 9 pages).

B.1.4 Other Publications

- 1. An Energy-Efficient Data Aggregation Algorithm for Wireless Sensor Networks, by Xundan Shi and Alvin Lim, Transactions on Computer and Communication Networks, Vol. 1, No. 1, 2011, Science Academy Publishers, UK (9 pages).
- 2. An Energy-Efficient Data Aggregation Algorithm for Wireless Sensor Networks, by Alvin Lim and Xundan Shi, Annual Review of Communications, Vol. 60, International Engineering Consortium, 2007 (10 pages).
- 3. Self-Organizing Wireless Sensor Networks with Reconfigurable Smart Nodes, by Alvin Lim, Annual Review of Communications, Vol. 58, International Engineering Consortium, 2005 (8 pages).
- 4. A Framework for Reliable Communicating Applications in Sensor Networks, by Alvin Lim, Annual Review of Communications, Vol. 56, International Engineering Consortium, 2003 (8 pages).
- 5. Support for Reconfigurable Sensor Networks with Distributed Lookup Services and Diffusion Networking, by Alvin Lim, Annual Review of Communications, Vol. 55, pp. 855-865, International Engineering Consortium, 2002 (11 pages).

B.2 Funded Research Grants and Contracts:

- National Science Foundation (NSF), REU Site: Parallel and Distributed Computing, PI: S. Baskiyar, Co-PI: Alvin Lim, May 16, 2017 - May 15, 2020.
- SBIR: U.S. Air Force, *Ephemeral Security Overlay for GPS*, PI: David Hodo (Integrated Solutions for Systems), co-PI: Alvin Lim, David Bevly, Anthony Skjellum, Phase 1: July 10, 2015 - April 10, 2016, Phase 2: June 1, 2013 - Sept 30, 2016.
- SBIR: Dept. of Homeland Security, Next Generation First Responder Communications Hub, PI: Will Travis (IS4S), co-PI: Alvin Lim, Phase 1: July 1, 2015 - Oct 31, 2015, Phase 2: March 14, 2016 -March 13, 2018.
- National Science Foundation (NSF), Positioning System in GPS-denied Environments using Euclidean TOA Ranging and Linear Matrix Inequalities, PI: Alvin Lim, co-PI: Douglas Warrington, Abhishek Kulkarni, July 1, 2014 - December 31, 2014.
- U.S. Federal Highway Administration (FHWA), Exploratory Advanced Research Program: Partial Automation for Truck Platooning, PI: David Bevly, co-PI: Alvin Lim, Rod Turochy, Richard Sesek, Andrew Shelton, Sept 19, 2013 - Sep 18, 2016.
- U.S. Army, CERDEC C2D, Radio Frequency (RF) Based Navigation Technologies for the Dismounted Soldiers; Network Assisted Navigation/GPS Topic A1 – Network Assisted Navigation/GPS, PI: James Daniel (IS4S), co-PI Glenn Rolader, William Travis, William Merrill, Alvin Lim, Shiwen Mao, Patrick Jeffer (General Dynamics), David Bevly, Phase 1 of 2, Feb 15, 2011 - Feb 14, 2012, Phase 2: June 1, 2013 - August 31, 2014,
- National Transportation Research Center Inc. (NTRCI), and U.S. Dept. of Transportation, Commercial Vehicle Secure Networks For Safety and Mobility Applications, PI: Alvin Lim, co-PI David Bevly, November 1, 2010 - Sept 30, 2011.
- National Transportation Research Center Inc. (NTRCI), and U.S. Dept. of Transportation, Vehicle Stability and Dynamics: Electronic Stability Control, PI: Alvin Lim, January 1, 2011 - Sept 30, 2011.
- Air Force, Rome Lab., Wi-Fi for Assured PNT and Integrity Verification, Phase 1, PI: James Daniel (IS4S), co-PI: David Bevly, Alvin Lim, Shiwen Mao, William Travis, Bernard, Schnaufer (Rockwell Collins), March 1, 2010 – December 1, 2010.
- NSF, (EPSCoR), An Infrastructure for Scalable Data Dissemination and Query Evaluation in Mobile Environments, PI: Wei-Shin Ku, Co-PI: Alvin Lim, Shiwen Mao, Xiao, Qin, Aug 16, 2009 – Aug 15, 2012.
- U.S. Army CECOM NVESD (Night Vision Electronic Sensors Directorate) and CACI Technologies, Inc., PI (Alvin Lim) on Development of Compact Sensor Fusion Nodes for Target Detection and Tracking, April 1 2009 – March 31, 2010.
- Dept. of Education, GAANN (Graduate Assistantship in Areas of National Needs) program, PI (Alvin Lim, 80% contribution) and co-PI: Kai Chang, et.al., on Doctoral Fellowship in Wireless and Mobile Technology, August 2007 – August 2010.
- DARPA STTR, co-PI (Alvin Lim) and PI (henry Day of Latel Corp. on Universal Imaging Sensor, August 1, 2007 – February 2009.
- Alion Science and Technology and U.S. Army CECOM NVESD (Night Vision Electronic Sensors Directorate), PI (Alvin Lim) on Collaborative Mixed Sensor Nodes for Target Detection and Tracking, Sept 15 2003 – Oct 15, 2006.
- 15. NSF ITR, PI (Alvin Lim) on Distributed Composition Services for Self-Organizing Sensor Network Applications, June 2003 June 2005.

- 16. DARPA, PI (Alvin Lim) on Self-Organizing Sensor Networks with Reconfigurable Smart Components, June 2000 June 2003.
- National Science Foundation (NSF) CAREER Award. PI (Alvin Lim) on Operating System Support and Programming Environment for Evolutionary Parallel and Distributed Applications, May 95 – April 2000.
- 18. Army CECOM. PI (Alvin Lim) on *ISDN/ATM Signal Interface*, Nov 96 Nov 98, with Ken Perry of Clark Atlanta University.
- 19. NFESC. Naval Facilities Engineering Service Center, PI (Alvin Lim) on A Study on the Characteristics and Requirements of Very Large and Mobile Distributed Systems and Distributed Databases, July 95 – Dec 95, with Calton Pu of Oregon Graduate Institute.
- GCATT. Co-PI of award from the Georgia Center for Advanced Telecommunications Technology on WDM Optical Networks for ATM & Distributed Computing Systems, July 95 – June 96, with Daniel J. Blumenthal (PI) of Georgia Inst. of Technology.
- 21. ACEIS. Co-PI of award from the Army Research Laboratory (95-98) and Army research Office (92-95) for the Army Center of Excellence in Information Sciences, July 1992 June 1998, with Nazir Warsi (PI), Erika Rogers, Roy George, K. Perry, R. Srikanth of CAU and S. Navathe, K. Eiselt of Georgia Inst. of Technology.

C. Teaching

C.1 Teaching Experience

Semester/		
Quarter	Course	Enrollment
Spring 2018	COMP 6360/5360 Wireless & Mobile Networks	11
Fall 2017	COMP 2710 Software Construction Section 2	57
Fall 2017	COMP 2710 Software Construction Section 1	66
Fall 2017	COMP 2710 Software Construction	20
Spring 2017	COMP 6360/5360 Wireless & Mobile Networks	26
Spring 2017	COMP 4320 Intro to Computer Networks	56
Fall 2016	COMP 2710 Software Construction	106
Spring 2016	COMP 6360/5360 Wireless & Mobile Networks	21
Spring 2016	COMP 4320 Intro to Computer Networks	49
Fall 2015	COMP 2710 Software Construction	78
Summer 2015	COMP 4320 Intro to Computer Networks	19
Spring 2015	COMP 6360/5360 Wireless & Mobile Networks	25
Spring 2015	COMP 4320 Intro to Computer Networks	45
Fall 2014	COMP 2710 Software Construction	78
Summer 2014	COMP 4320 Intro to Computer Networks	23
Spring 2014	COMP 4320 Intro to Computer Networks	50
Spring 2014	COMP 6360 Wireless & Mobile Networks	26
Fall 2013	COMP 2710 Software Construction	62
Fall 2013	COMP 6320 Design & Analysis of Computer Networks	10
Summer 2013	COMP 2710 Software Construction	22
Summer 2013	COMP 3500 Intro. to Operating Systems	20
Spring 2013	COMP 4320 Intro to Computer Networks	27
Spring 2013	COMP 6360 Wireless & Mobile Networks	22
Fall 2012	COMP 2710 Software Construction	54
Fall 2012	COMP 7360 Advanced Wireless & Mobile Networks	11
Summer 2012	COMP 2710 Software Construction	21
Spring 2012	COMP 4320 Intro to Computer Networks	42
Spring 2012	COMP 6360 Wireless & Mobile Networks	28
Fall 2011	COMP 3000 Object-Oriented Programming for Engineers and Scientists	33
Spring 2011	COMP 4320 Intro to Computer Networks	30
Spring 2011	COMP 6360 Wireless & Mobile Networks	28
Fall 2010	COMP 7360 Advanced Wireless & Mobile Networks	11
Fall 2010	COMP 2710 Software Construction	54
Spring 2010	COMP 4320 Intro to Computer Networks	27
Spring 2010	COMP 6360 Wireless & Mobile Networks	21
Fall 2009	COMP 3000 Object-Oriented Programming for Engineers and Scientists	32
Summer 2009	COMP 4320 Intro to Computer Networks	19
Spring 2009	COMP 4320 Intro to Computer Networks	17
Spring 2009	COMP 6360 Wireless & Mobile Networks	35
Fall 2008	COMP 4320 Intro to Computer Networks	28
Summer 2008	COMP 3500 Intro. to Operating Systems	20
Spring 2008	COMP 7500 Mobile Computing	7
Spring 2008	COMP 6360 Wireless & Mobile Networks	16
Fall 2007	COMP 4320 Intro to Computer Networks	15
Spring 2007	COMP 7360 Advanced Wireless & Mobile Networks	6
Spring 2007	COMP 6360 Wireless & Mobile Networks	19
Fall 2006	COMP 6500 Distributed Operating Systems	10
Fall 2006	COMP 6360 Wireless & Mobile Networks	15
Spring 2006	COMP 7500 Mobile Computing	6
Spring 2006	COMP 7360 Advanced Wireless & Mobile Networks	12
Fall 2005	COMP 7500 Mobile Computing	6
Fall 2005	COMP 6360 Wireless and Mobile Networks	13
Spring 2005	COMP 7500 Mobile Computing	13
Spring 2005	COMP 6500 Distributed Operating Systems	8
Fall 2004	COMP 6360 Wireless and Mobile Networks	16
Fall 2004	COMP 3000 Object-Oriented Programming for Engineers and Scientists	46
Spring 2004	COMP 4710 Senior Design Project	17
Spring 2004	COMP 7500 Mobile Computing	31

Semester/		
Quarter	Course	Enrollment
Fall 2001	COMP 4320 Intro to Computer Networks	31
Fall 2001	COMP 6320 Design & Analysis of Computer Networks	9
Spring 2001	COMP 7500 Mobile Computing	18
Spring 2001	COMP 4320 Intro to Computer Networks	33
Fall 2000	COMP 6320 Design & Analysis of Computer Networks	42
Fall 2000	COMP 4320 Intro to Computer Networks	27
Summer 2000	CSE 632 Computer Networks and Data Communications	19
Spring 2000	CSE 350 Object-Oriented Programming in C++	50
Spring 2000	CSE 300 C++ for Engineers	13
Winter 2000	CSE 632 Computer Networks and Data Communications	30
Winter 2000	CSE 350 Object-Oriented Programming in C++	40
Winter 2000	CSE 300 C++ for Engineers	12
Fall 1999	CSE 600 Advanced System Programming	12
Fall 1999	CSE 532 Design and Analysis of Computer Networks	30
Spring 1999	CSE 639 Advanced Networks Protocol Design	17
Spring 1999	CSE 350 Object-Oriented Programming in C++	46
Winter 1999	CSE 632 Computer Networks and Data Communications	26
Winter 1999	CSE 350 Object-Oriented Programming in C++	46
Fall 1998	CSE 532 Design and Analysis of Computer Networks	32
Fall 1998	CSE 350 Object-Oriented Programming in C++	48
Spring 1998	CSE 532 Design and Analysis of Computer Networks	10
Winter 1998	CSE 632 Computer Networks and Data Communications	10
Fall 1997	CSE 532 Design and Analysis of Computer Networks	29

C.2 Student Advising

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C.2.1 Ph.D. Students Graduated

- Song Gao, Ph,D, Fall 2016
 Dissertation Title: Improving Vehicular Networking Reliability and Efficiency in the Context of Platooning Applications
 Employment: Rack Space Inc.
- Kanika Grover, Ph.D. Fall 2014
 Dissertation Title: Privacy-Enabled Probabilistic Verification in Broadcast Authentication for Vehicular Networks
 Employment: Instructor, Department of Computer Science, Arizona State University
- Dongjin Kim, Ph.D. Summer 2014
 Dissertation Title: Adaptive Rate Control based on Collision and Frame Aggregation Awareness
 Employment: Army of the Republic of Korea
- Seungbae Lee, Ph.D. Spring 2014
 Dissertation Title: Adaptive TCP Flow Controlfor Improving Performance of Mobile Cloud Clusters Employment: Air Force of the Republic of Korea
- Qing Yang, Ph.D. Spring 2011
 Dissertation Title: Adaptive Connectivity Aware Routing Protocol for Wireless Vehicular Networks Employment: Assistant Professor, Department of Computer Science, Montana State University, Bozeman, MT.
- Kehao Zhang, Ph.D. Summer 2010
 Dissertation Title: A Practical Rate Adaptation Algorithm for IEEE 802.11 Networks
 Employment: ZTE USA (Zhongxing Telecommunication Equipment Corporations), Dallas, TX.

- Raghu-Kisore Neelisetti, Ph.D. Summer 2008
 Dissertation Title: Target Tracking Using Wireless Acoustic Sensors
 Employment: General Motors, Inc., Warren, MI.
- Kenan Casey, Ph.D. Spring 2007
 Dissertation Title: Scalable, Self-Healing, and Real-Time Network Services for Directed Diffusion
 Employment: Assistant Professor at Freed-Hardeman University, Henderson, TN
- Zhang, Lei, Ph.D. Summer 2008
 Dissertation Title: An Improved Routing for Underwater Acoustic Sensor Networks Employment: Assistant Professor, School of Computer Science and Technology, Tianjin University, Tianjin Key Laboratory of Cognitive Computing and Application, Tianjin, China

C.2.2 Current Ph.D. Students

- Abhishek Kulkarni, Ph,D, expected Fall 2022
 Dissertation Title: Research Issues in Universal Positioning System using Euclidean TOA and Linear Matrix Inequalities
- Yufei Yan, Ph,D, expected Spring 2021
 Dissertation Title: Research Issues Vehicular Ad Hoc Networks for Vehicle Platooning
- Yue Cui, Ph,D, expected Spring 2021
 Dissertation Title: Mutipath TCP and Large Scale OLSR Networks for Reliable Communication of First Responders
- Tianhang Lan, Ph,D, expected Spring 2021
 Dissertation Title: Optimization of Mutipath TCP for Reliable Communication of First Responders

C.2.3 M.S. Students Graduated

- Ethan Mata, M.S. Fall 2017 Thesis Title: An Evaluation and Comparison of Ad Hoc Routing Algorithms for the Purpose of Autonomous Vehicle Control
- Kaushik Vedalaveni, M.Swe. Fall 2017
 Project Title: Implementation and Evaluation of Multipath TCP in Communication Hub
- Amogh Kashyap, M.S. Summer 2017 Thesis Title: Statistical Time-of-Arrival Ranging by measuring RoundTrip-Time at Driver Layer in IEEE 802.11g Networks
- 4. Qi Shu, M.Swe. Fall 2016 **Project Title:** Network Simulation and Performance Measurements
- Abhishek Kulkarni, M.S. Spring 2016
 Thesis Title: Self-Localization of Target nodes using Opportunistic communication with reference nodes, Statistical Time-Of-Arrival, Grid Method, Linear Matrix Inequality and Center-Of-Gravity
- James McCracken, M.S. Fall 2012 Thesis Title: Design, Implementation, and Evaluation of Data Dissemination Methods in a Mobile Ad-Hoc Network
- Dongsuk Song, M.S. Summer 2012 Thesis Title: Evaluation of Realistic Mobility Model for Comparative Study of Routing Protocols in IEEE 802.11p (DSRC) Vehicular Ad-hoc Network (VANET)

- Brandon Keith Maharrey, M.S. Fall 2010 Thesis Title: A Gateway-Based Approach for Information Retrieval from Data-Centric Wireless Sensor Networks from IP Hosts
- Anand Kulkarni, M.S. Summer 2010 Thesis Title: Congestion Control In Wireless Sensor Network Employment: Google, Inc., Seattle, WA.
- ArunKumar Thippur Jayak, M.S. Spring 2009 Thesis Title: Query-Localized Route Repair Mechanism for Ad-hoc On-demand Distance Vector Routing Algorithm
- Shuang Li, M.S. Summer 2008 Thesis Title: Improving Throughput of Video Streaming in Wireless Sensor Networks Employment: Google, Inc., Seattle, WA.
- Jinren Jin, M.S. Fall 2007 Thesis Title: Improving Geographic Routing with Neighbor Sectoring
- Bo Li, M.S. Summer 2008 Thesis Title: Multiple UAV Simulation With Multi-Resolution Multi-Stage Model And Decision Support
- Sundeep, Gopalaswarmy, M.S. 2007 Thesis Title: Dynamic Distributed Server for detection and propagation of Traffic Congestion Employment: Samsung Telecommunication America (STA), Samsung San Jose Mobile Communica-tion Labs, San Jose, CA.
- Eunkyung Kim, M.S. Spring 2006
 Thesis Title: Adaptation Service Framework for Wireless Sensor networks with Balanced Energy Aggregation
- Naik, Udayan, M.S. Fall 2005 Thesis Title: Implementation of Distributed Composition Service for Self-Organizing Sensor Networks
- Mark Ivester, M.S. Spring 2005 Thesis Title: Interactive and Extensible Runtime Framework for Execution and Monitoring of Sensor Network Services
- Xundan Shi, M.S. Fall 2004
 Thesis Title: Energy-Efficient Data Aggregation in Wireless Sensor Networks
- Xuan Yu, M.S. Spring 2003
 Thesis Title: Distributed Lookup Services for Self-Organizing Sensor Networks
- Ye Wang, M.S. Spring 2003
 Thesis Title: Distributed Adaptation Services for Self-Organizing Sensor Networks
- 21. Qiao Shen, M.S. Fall 2002 **Thesis Title:** Distributed Composition Service for Self-Organizing Sensor Networks

C.2.4 Current M.S. Students

 John David Sprunger, M.S. expected Fall 2018 Thesis Title: Ephemeral GPS Security using Threshold Cryptography and OLSR wireless ad hoc networks